GYM INJURIES

Make no mistake, there are hidden dangers in the gym. However good health and safety is, someone in a gym somewhere is probably dropping a weight on their foot or overstraining as you read this article. Chartered Physiotherapist **Chris Norris** looks at three common gym injuries and reveals the cause and effect of each and explains what you can do avoid becoming a victim!

SQUATTERS KNEE

The knee is actually two joints, one between the kneecap and thigh bone (patello-femoral joint) the other between the thigh and shin bones (tibio-femoral joint). Both joints can be affected with poor squat technique. The patella joint is most frequently injured with poor lower limb alignment in the squat, the knee joint itself by squatting too deeply.

As you bend your knee in a squat your kneecap slides in a groove on the front of the thighbone. The kneecap is kept central within this groove by a balance of muscle pull and a special tissue which attaches to the kneecap called the retinaculum. However, if you flatten your feet too much and allow your knees to slide inwards into a knock knee position, the tissue pull on the kneecap becomes uneven and the kneecap is forced to the side of the its groove on the thighbone causing it to scrape painfully. The answer is to make sure that your knee passes over the centre of your foot as you squat, avoiding a knock knee and flat foot lower limb posture.

As you move into the lower position of the squat, your hamstring muscles on the back of your thigh can come into contact with the top of your calf muscle (gastrocnemius) producing a 'nutcracker' effect with the nut being cracked in this case your knee joint!! The effect of the two sets of muscles coming into contact is to force the knee bones apart, over stretching the knee ligaments. This stretch is further increased if you bounce into the lower position. To avoid this strain, make sure that you squat only until your thigh bone is horizontal. If you have very bulky legs you may find even this position too deep, and will want to stop when your knee joint angle reaches 90°. A good teaching method to assess this is to rub some powdered chalk onto the top of your calf. When you squat see if the chalk powder has rubbed onto your lower thigh – if it has your two muscles have come into contact and you have squatted too deep.

TRICEPS ELBOW

Have you even found that your elbows ache after doing sets of triceps extensions with a barbell or dumbbell kickbacks? This is very common, and concerns the triceps muscle attachment into the back of the elbow. At the back of the elbow, the top of your large forearm bone (ulna) forms a C shape attachment onto your arm bone (humerus). The C shaped region is called the olecranon and the shape enables your arm to lock out straight without giving way. As the elbow straightens the olecranon locks into a small hollow on the back of the joint, and herein lies the problem. If you lock your elbow out too quickly, the olecranon snaps into the fossa

causing aching and swelling and sometimes even trapping tissue within the area.

This is one cause of the aching after triceps extensions, and the answer is to perform the exercise slowly avoiding the snapping out action as you straighten your arm. The other reason pain occurs is that the attachment of the triceps muscle itself can inflame, again due to the snapping action and the muscle stress that this involves. Again the answer is to slow down and keep control of the movement at the end of the rep.

SIT-UPS - A PAIN IN THE GROIN (GILMORES)

We all want a six pack but the problem is, unless you have the right genetics, you may have to perform endless abdominal exercises to get it! The reason is that the six pack appearance is due to natural splits within the main abdominal muscle (rectus abdominis). Some people naturally have deeper splits or 'intersections,'

together with thicker block like portions of the muscle and a lower fat percentage. Hence they have a thinner layer of flesh over the muscle. When beginners join a gym they often get frustrated because they exercise and diet but are not able to get the six pack of their dreams. As a result they simply increase the number of abdominal exercises in a workout and the number of reps in a frantic attempt to bring on their abdominal development. In so doing, the sit-up movement becomes dangerous. This is because the sit-up action with either knees bent or straight puts its primary work stress on the hip flexor muscles with the abdominal muscles secondary.

The hip flexors are immensely strong, and often the stress causes a damage to the lower abdominal muscles. The portion which is injured is not actually the rectus itself, but the external oblique muscle as it attaches into the groin ligament (inguinal ligament). Over time this attachment may be damaged causing a sports hernia (Gilmore's groin).

Preventing this is twofold. Firstly, train to your genetic potential - in other words get the best out of your body rather than striving towards something shown on a fashion photograph. Secondly, train for quality rather than quantity. Perform fewer abdominal exercises, but make each rep count. Use slow controlled actions beginning with core stability work and progressing to more functional abdominal work using a gymball for example. A total ab workout should work your core abdominals (transverses and internal oblique), as well as your external oblique (trunk rotation), quadratus lumborum (side bridge) and both upper (sit-up) and lower (pelvic raise) rectus. With this you will develop excellent core stability, good functional movement and great central body strength for sport. If you don't get a six pack to show off, blame your parents!! **UF**

Christopher Norris is a Chartered Physiotherapist who holds a masters degree in sports science. He has a postgraduate certificate in orthopaedic medicine, a certificate in occupational health physiotherapy, and an advanced certificate in Traditional Chinese Acupuncture. He has over 20 years' experience treating soft tissue injuries, and specialises in sports injuries and exercise therapy.

He is the author of six physiotherapy books including a textbook on sports injuries which is a core text on many physiotherapy and rehabilitation courses across the world. His recent book and accompanying CD 'Back Stability' have received rave reviews on both sides of the Atlantic. He has produced two further exercise CDs and two exercise videos. Chris runs two private clinics and is a physiotherapy consultant to several blue-chip industries. He is an external university lecturer and lectures regularly for the British Association of Sports Medicine. He runs back stability and muscle imbalance courses at hospitals and universities in the UK and USA. An active sportsman, Chris is a blackbelt in Ju Jitsu and a coach for the World Ju Jitsu Federation (WJJF).